

CLAIMS

What is claimed is:

1 1. A method for improving open loop power control in  
2 spread spectrum telecommunications systems, the method  
3 comprising the steps of:  
4 transmitting at least one first access channel probe  
5 for a first message from a mobile station to a base station,  
6 the transmission power level of each access channel probe in  
7 the at least one first access channel probe being increased  
8 until a base station acknowledgment is received for a  
9 specific access channel probe of the at least one first  
10 access channel probe at a first transmission power level;  
11 storing the first transmission power level at the  
12 mobile station; and  
13 transmitting at least one second access channel probe  
14 for a second message from the mobile station to the base  
15 station, the transmission power level of an initial access  
16 channel probe of the at least one second access channel  
17 probe for the second message being based upon the first  
18 transmission power level.

1        2.    The method as defined in claim 1, further comprising  
2        the step of:

3            storing a recently measured received code power from  
4        the base station at the mobile station, the transmission  
5        power level of the initial access channel probe of the at  
6        least one second access channel probe for the second message  
7        being further based upon the recently measured received code  
8        power.

9        3.    The method as defined in claim 1, further comprising  
10       the step of:

11           storing a recently measured base station interference  
12       level at the mobile station, the transmission power level of  
13       the initial access channel probe of the at least one second  
14       access channel probe for the second message being further  
15       based upon the recently measured base station interference  
16       level.

17       4.    The method as defined in claim 1, wherein the first  
18       message is a first packet and the second message is a second  
19       packet in a packet mode transmission.

1 5. The method as defined in claim 1, wherein the  
2 transmission power level of an initial access channel probe  
3 of the at least one first access channel probe for the first  
4 message is based upon a path loss between the mobile station  
5 and the base station.

6 6. The method as defined in claim 5, wherein the  
7 transmission power level of an initial access channel probe  
8 of the at least one first access channel probe for the first  
9 message is further based upon a base station interference  
10 level.

11 7. The method as defined in claim 1, wherein the  
12 transmission power level of the initial access channel probe  
13 of the at least one second access channel probe for the  
14 second message is closer to the first transmission power  
15 level than a transmission power level of an initial access  
16 channel probe of the at least one first access channel probe  
17 for the first message.

18 8. The method as defined in claim 1, wherein the  
19 transmission power level of the initial access channel probe

1 of the at least one second access channel probe for the  
2 second message is closer to a transmission power level that  
3 is required to have the initial access channel probe reach  
4 the base station than a transmission power level of an  
5 initial access channel probe of the at least one first  
6 access channel probe for the first message.

7 9. The method as defined in claim 1, wherein the  
8 transmission power level of the second message is at or  
9 slightly above a transmission power level that is required  
10 to have the second message reach the base station.

11 10. An apparatus for improving open loop power control in  
12 spread spectrum telecommunications systems, the apparatus  
13 comprising:

14 at least one memory for storing a first transmission  
15 power level of a specific access channel probe of at least  
16 one first access channel probe for a first message  
17 transmitted from a mobile station to a base station, the  
18 specific access channel probe of the at least one first  
19 access channel probe being the first access channel probe to  
20 receive an acknowledgment from the base station; and

1 at least one processor for determining a second  
2 transmission power level of an initial access channel probe  
3 of at least one second access channel probe for a second  
4 message to be transmitted from the mobile station to the  
5 base station, the second transmission power level of the  
6 initial access channel probe of the at least one second  
7 access channel probe for the second message being determined  
8 based upon first transmission power level.

9 11. The apparatus as defined in claim 10, wherein the  
10 memory also stores a recently measured received code power  
11 from the base station, the second transmission power level  
12 of the initial access channel probe of the at least one  
13 second access channel probe for the second message being  
14 further based upon the recently measured received code  
15 power.

16 12. The apparatus as defined in claim 10, wherein the  
17 memory also stores a recently measured base station  
18 interference level, the second transmission power level of  
19 the initial access channel probe of the at least one second  
20 access channel probe for the second message being further

1 based upon the recently measured base station interference  
2 level.

3 13. The apparatus as defined in claim 10, wherein the first  
4 message is a first packet and the second message is a second  
5 packet in a packet mode transmission.

6 14. The apparatus as defined in claim 10, wherein the  
7 transmission power level of an initial access channel probe  
8 of the at least one first access channel probe for the first  
9 message is based upon a path loss between the mobile station  
10 and the base station.

11 15. The apparatus as defined in claim 14, wherein the  
12 transmission power level of an initial access channel probe  
13 of the at least one first access channel probe for the first  
14 message is further based upon a base station interference  
15 level.

16 16. The apparatus as defined in claim 10, wherein the  
17 second transmission power level of the initial access  
18 channel probe of the at least one second access channel

1 probe for the second message is closer to the first  
2 transmission power level than a transmission power level of  
3 an initial access channel probe of the at least one first  
4 access channel probe for the first message.

5 17. The apparatus as defined in claim 10, wherein the  
6 second transmission power level of the initial access  
7 channel probe of the at least one second access channel  
8 probe for the second message is closer to a transmission  
9 power level that is required to have the initial access  
10 channel probe reach the base station than a transmission  
11 power level of an initial access channel probe of the at  
12 least one first access channel probe for the first message.

13 18. The apparatus as defined in claim 10, wherein the  
14 second transmission power level of the initial access  
15 channel probe of the at least one second access channel  
16 probe for the second message is at or slightly above a  
17 transmission power level that is required to have the  
18 initial access channel probe reach the base station.

1 19. An article of manufacture for improving open loop power  
2 control in spread spectrum telecommunications systems, the  
3 article of manufacture comprising:

4 at least one processor readable carrier; and

5 instructions carried on the at least one carrier;

6 wherein the instructions are configured to be readable from  
7 the at least one carrier by at least one processor and  
8 thereby cause the at least one processor to operate so as  
9 to:

10 transmit at least one first access channel probe for a  
11 first message from a mobile station to a base station, the  
12 transmission power level of each access channel probe in the  
13 at least one first access channel probe being increased  
14 until a base station acknowledgment is received for a  
15 specific access channel probe of the at least one first  
16 access channel probe at a first transmission power level;

17 store the first transmission power level at the mobile  
18 station; and

19 transmit at least one second access channel probe for a  
20 second message from the mobile station to the base station,  
21 the transmission power level of an initial access channel  
22 probe of the at least one second access channel probe for



1 the second message being based upon the first transmission  
2 power level.

3 20. The article of manufacture as defined in claim 19,  
4 further causing the at least one processor to operate so as  
5 to:

6 store a recently measured received code power from the  
7 base station at the mobile station, the transmission power  
8 level of the initial access channel probe of the at least  
9 one second access channel probe for the second message being  
10 further based upon the recently measured received code  
11 power.

12 21. The article of manufacture as defined in claim 19,  
13 further causing the at least one processor to operate so as  
14 to:

15 store a recently measured base station interference  
16 level at the mobile station, the transmission power level of  
17 the initial access channel probe of the at least one second  
18 access channel probe for the second message being further  
19 based upon the recently measured base station interference  
20 level.

1 22. The article of manufacture as defined in claim 19,  
2 wherein the first message is a first packet and the second  
3 message is a second packet in a packet mode transmission.

4 23. The article of manufacture as defined in claim 19,  
5 wherein the transmission power level of an initial access  
6 channel probe of the at least one first access channel probe  
7 for the first message is based upon a path loss between the  
8 mobile station and the base station.

9 24. The article of manufacture as defined in claim 23,  
10 wherein the transmission power level of an initial access  
11 channel probe of the at least one first access channel probe  
12 for the first message is further based upon a base station  
13 interference level.

14 25. The article of manufacture as defined in claim 19,  
15 wherein the transmission power level of the initial access  
16 channel probe of the at least one second access channel  
17 probe for the second message is closer to the first  
18 transmission power level than a transmission power level of

1 an initial access channel probe of the at least one first  
2 access channel probe for the first message.

3 26. The article of manufacture as defined in claim 19,  
4 wherein the transmission power level of the initial access  
5 channel probe of the at least one second access channel  
6 probe for the second message is closer to a transmission  
7 power level that is required to have the initial access  
8 channel probe reach the base station than a transmission  
9 power level of an initial access channel probe of the at  
10 least one first access channel probe for the first message.

11 27. The article of manufacture as defined in claim 19,  
12 wherein the transmission power level of the initial access  
13 channel probe of the at least one second access channel  
14 probe for the second message is at or slightly above a  
15 transmission power level that is required to have the  
16 initial access channel probe reach the base station.